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**U.S. ARMY-BAYLOR UNIVERSITY**  
**GRADUATE PROGRAM IN HEALTH CARE ADMINISTRATION**

**IDENTIFYING POTENTIAL BASES FOR BIAS IN MEDICARE PART B**  
**CLAIMS REVIEW FOR MEDICAL NECESSITY**

**A GRADUATE MANAGEMENT PROJECT**  
**SUBMITTED TO COMMANDER STEVE RICE**  
**AND LIEUTENANT COMMANDER PETER F. O'CONNOR**  
**IN CANDIDACY FOR THE DEGREE OF**  
**MASTER OF HEALTH CARE ADMINISTRATION**

**BY**  
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**WASHINGTON, D.C.**

**6 JUN 1995**

## **ABSTRACT**

One of the most difficult tasks facing Health Care Financing Administration policy makers is determining if medical necessity denial rates are appropriate for Medicare Part B claims. High or low rates are appropriate only if decisions are based solely on consistent application of valid criteria established by carriers for the purpose of identifying services that comply with the standards for medically necessary care. Although critics have been quick to find fault with the medical necessity review process, few have examined for systematic effects of this unfairness. The purpose of this study was to determine if there are trends in carrier medical review decisions, involving identifiable claims characteristics, that may indicate a basis for bias in claims processing. Claims reviewed for medical necessity by four regional carriers were analyzed for relationships between medical review decision and type of strategy for medical review; gender, origin of training and specialty of provider; place of service; and geographic location. While no relationship was found between medical review decision and type review, gender, origin, or place of service, both provider specialty and geographic location were significant predictors of review outcome.

## ACKNOWLEDGEMENTS

In preparing for a race a few years ago, I asked my mechanic which bike might best win the race. He replied, "always remember, it's not the bow and arrow, it's the Indian!" In this case that proved not true. I would like to take this opportunity to recognize a few of the bows and arrows without whose help I would never have won the race that culminated in the production of this manuscript. My thanks to my preceptor, CDR Steve Rice, whose efforts assured a most unique and interesting residency as the foundation for a year of tremendous learning and professional growth. A special thanks goes to my faculty reader and advisor, LCDR Peter F. O'Connor, who provided invaluable guidance and oversight in development of this project and in the report format. And most importantly, I would like to thank my wife, Donna, whose constant support and encouragement kept me going throughout these last two years of study, and whose inspiration made it all possible.

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## OVERVIEW

One of the most difficult tasks facing Health Care Financing Administration (HCFA) policy makers is determining if medical necessity denial rates are appropriate for Medicare Part B claims submitted by health care providers or beneficiaries. High denial rates may indicate either inefficiency in the claims processing and appeal procedure or that providers are submitting large numbers of claims for services that are not medically necessary. Low rates may indicate similar inefficiency in processing claims that do not meet established medical necessity criteria, or that providers are billing appropriately. High or low rates are appropriate only if decisions are based solely on consistent application of valid criteria established by carriers for the purpose of identifying services that comply with the standard for medically necessary care. However, it is the intent of the Medicare Part B program to recognize local variation in standards of care by allowing regional carriers to develop unique criteria for determining medical necessity.

Since 1992 the General Accounting Office (GAO) has conducted an ongoing investigation of Medicare Part B claims processing. They have continually pointed out the inherent variability expected of a system that mandates reimbursement only for services that are medically necessary but allows local or regional determination of criteria establishing such standards. In their words:

That is, a policy cannot, at the same time, both allow for local variation in what is or is not viewed as medically necessary and also produce uniform results.<sup>1</sup>

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<sup>1</sup>GAO/T-PEMD-94-17, Medicare Part B: Inconsistent Denial Rates for Medical Necessity Across Six Carriers, March 29, 1994: 13.

But within the regional standard, there should be validity and reliability in such judgments. At least one report has been critical of the quality review mechanisms employed by HCFA and the regional carriers with regard to validity and reliability of locally established screening criteria for medical necessity and appropriateness.<sup>2</sup> Although the GAO was critical of the lack of verification of validity, it is the reliability of these screens that is of concern here.

While much of the Medicare Part B claims review process is accomplished through auto-adjudication (computerized, logic-based review for compliance with program authorizations), screening for medically necessary and appropriate care is most often subject to manual review. Although guidelines are provided in the form of medical policy application instructions, examiners exercise some discretion in interpreting these guidelines. Within individual carriers, the extent of inefficiency in this discretion may be observed in rates of suspension-to-denial of claims. Initial reviewers' suspensions of claims may lead to higher level reviews by more competent authority that ultimately determine the approval or denial of the claim. An investigation of four carriers in 1993 demonstrated a variability in these rates of from one to ninety-five percent.<sup>3</sup> Similarly, excessive rates of reversal on appeal of denied claims beyond the carrier level are a function of the discretionary nature of these decisions. Speculation about possible explanations for the observed inefficiencies in suspension-to-denial rates, and appeal reversal rates, are cause for concern among HCFA policy makers. The possibility that they could be the result of bias in claims reimbursement decisions is the reason for this research.

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<sup>2</sup>GAO/PEMD-93-14, Medicare: HCFA Monitoring of the Quality of Part B Claims Processing, September 23, 1992: 6.

<sup>3</sup>GAO/PEMD-93-27, Medicare Part B: Reliability of Claims Processing Across Four Carriers, August 11, 1994: 16.1



# CHAPTER 1

## INTRODUCTION

### Conditions Which Prompted the Study.

The original authorizing legislation and its many reinforcing amendments specify Medicare's responsibility to pay only for care that is appropriate and medically necessary.<sup>4</sup> Under the current climate of escalating costs of care, an expanding beneficiary population, increased budgetary constraints, and total quality management, the need to guard against reimbursement for inappropriate care becomes even more important. At the same time, consumer's rights demand that reimbursement for care be administered fairly and equitably to those so entitled. The verification of basic beneficiary enrollment and eligibility parameters in claims processing is relatively automatic and not subject to much controversy. However, the policies and procedures employed in the determination of medical necessity remain controversial.

Physicians and other providers have taken exception to the medical necessity review process from its inception. They complained of the costs, in both time and physical resources, and the detriment to patient care as a result of the reviews and denials of claims. Especially inefficient was the suspension and denial of claims at lower levels, only to be reversed upon higher level review. The controversy escalated with enforcement of the Social Security Act provision that required physicians to refund fees to patients whose

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<sup>4</sup>42 USC, section 1395y,(a),(1).

claims were denied on the basis of screens for medical necessity or inappropriateness.<sup>5</sup>

As a result, providers were increasingly reluctant to accept Medicare patients. Concern for the need to address provider criticisms contributed to the establishment of a HCFA sponsored Advisory Committee on Medicare-Physician Relationships to recommend program changes to the Secretary of Health and Human Services and to further investigate these complaints.<sup>6</sup>

The primary concern stems from perceived inequities in the claims review process. Although claims that have been initially erroneously denied are often reversed on further review, or the provider recognizes his error in judgment and the decision stands, frequently the provider and Medicare's intermediary simply have a difference of opinion on whether the care was, or was not, necessary. Arguments thus tend to fall to indictment of the entire claims review system, and especially the development and implementation of the medical necessity review criteria.

Various elements of HCFA procedures for screening for medical necessity and appropriateness of care have been criticized. None have been attacked more vociferously than the carriers' use of non-medical personnel in the claims review process, and the arbitrary nature of their decisions based on interpretation of screening criteria. One very public case culminated in congressional hearings involving accusations against HCFA, one of its carriers and a medical review subcontractor, and ultimately the Department of

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<sup>5</sup>42 USC, section 1395u,(l),(1),(A).

<sup>6</sup>Tudor, J., "Medicare hassles and family physicians," American Family Physician Vol. 45, No. 2 (February 1992): 487.

Health and Human Services Inspector General.<sup>7</sup> Many of the issues raised in these cases have never been answered to the satisfaction of the provider community. Many of the same procedures to which exceptions were taken remain hallmarks of the medical necessity review process.

Although less public in debate, similar criticism has been leveled at the Social Security Administration's (SSA) Office of Hearings and Appeals (OHA), Administrative Law Judge (ALJ) review of appeals of intermediaries' denials of claims following review for medical necessity.<sup>8</sup> The number of claims involved is much fewer but the dollar values are significant and it is the last level of non-judicial relief. A claim reaching this level would have gone through at least three levels of review and one level of appeal. The persistence of providers and/or beneficiaries in pursuing the appeal to this level demonstrates strong feeling on their part of the appropriateness of care involved. Results of this level of review might be most relevant in analysis of reliability and potential bias in the claims review process. However, OHA currently maintains no system capable of correlating claim characteristics and appeal decision.

The criticisms of Medicare and its intermediaries are not unique to the public sector. The costs of the claims review process, and appeal of denials for inappropriateness of care, are frequently cited as a major cause for the escalating costs of health care in the private sector as well. The suspension, denial, and lengthy appeals process are often seen as an incognito rationing mechanism in an overtaxed reimbursement system. The call for

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<sup>7</sup>Clark, L., "Did doctors really win this fight with Medicare?" Medical Economics (March 2, 1992): 65-72.

<sup>8</sup>GAO/HRD-90-18, Medicare: Statistics on the Part B Administrative Law Judge Hearings Process, November 28, 1989.

reform requires that the system eliminate both unnecessary reimbursement and inefficiency in benefits administration.

Other recent trends in the American health care delivery system have stimulated renewed scrutiny of the claims review process. Court decisions have begun to imply carrier liability for injury or death in cases of denial of coverage for questionable medical necessity or appropriateness of care.<sup>9, 10</sup> It is obvious from the recent national health care reform debate that popular political opinion is of the notion that much of medical care is unnecessary. Prior to the proliferation of computerized claims, the time and resources necessary to perform utilization review were a significant handicap. As data management capabilities increase, with more sophisticated (less expensive) information systems development, many of the current obstacles which limit claims review will be overcome.

The physician provider community interprets the significant investment HCFA has made in outcomes research and methods of determining appropriateness of care to indicate that Medicare will increase its screening of claims for medical necessity.<sup>11</sup> Emphasis in the health care delivery system on outcomes research that is aimed at identifying most effective treatments and reducing variations in care demands standardization of medical necessity review criteria. For a utilization management tool like claims review for medical necessity to be acceptable as a quality assurance or cost containment strategy, it must continue to demonstrate validity and reliability in the process.

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<sup>9</sup>Anders, G., "Researchers call insurers 'arbitrary' in covering bone-marrow transplants," WSJ (February 17, 1994): B12.

<sup>10</sup>Winslow, R., "How political pressure pushed a U.S. agency to back therapy," WSJ (November 17, 1994): A1.

<sup>11</sup>Hirshfeld, E., "Medically unnecessary denials: where the standards come from and how physicians can participate," JAMA Vol. 262, No. 22 (December 8, 1989): 3187-3194.

### Statement of the Problem.

While Supplementary Medical Insurance Program administrative costs, claims processing costs, and number of Medicare Part B claim denials appealed have decreased in recent years, the percent reversal rate for carrier reviews has increased significantly (see Appendix A). At the very least, investigators have found unacceptable levels of variability in the results of medical necessity screening across carriers. Providers, beneficiaries, and other health care industry researchers perceive the current system as potentially unfair. The premise that review of claims for medical necessity will eliminate reimbursement, and perhaps provision, of inappropriate care is based on the assumption that there is general agreement across providers on what circumstances warrant which level of treatment. The corollary assumption is that clinical practice guidelines can be developed and applied to standardize practitioner behavior. However, as the Congressional Office of Technology Assessment (OTA) points out in its most recent methodological review of health technology research:

The research on appropriateness, for example, has found that higher rates of use of a procedure are not equal to higher levels of inappropriate care. Nor does current research necessarily support the idea that the source of variations in clinical practice is individual provider uncertainty that can be abolished by presenting that practitioner with good information or guidelines. Rather, research suggests that uncertainty lies in disagreements among physicians, with individual physicians possibly quite confident in their own opinions, . . . implying a more difficult job for federally sponsored activities whose ultimate goal is to affect clinical practice by improving outcomes, reducing costs, or both.<sup>12</sup>

Although critics have been quick to find fault with the medical necessity review process, few have examined for systematic effects of this unfairness. Criticism in the literature,

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<sup>12</sup>OTA-H-608. U.S. Congress, Office of Technology Assessment, Identifying Health Technologies That Work: Searching for Evidence, September 1994: 137.

along with anecdotal reporting from providers, carriers, and staffers within HCFA, cause policy makers concern that bias within the medical necessity screening process may unfairly affect certain categories of individual providers, or beneficiaries themselves as a result of decisions involving their care givers. The question remains, if the process is unfair, in what manner are providers and beneficiaries affected? In other words, are there identifiable biases in the current system? Are claims associated with a certain class of provider more likely to be denied than approved? Does place of service predict likelihood of approval? Are practitioners, or procedures performed, in certain locations more likely to have claims denied than others? Are biases incidental or do they represent a pattern of discrimination? If bias does exist, then it is important to distinguish if it is inadvertent or possibly deliberate.

### Background.

Medicare is an entitlement program authorized under Title XVIII of the Social Security Act by amendment in Congress in 1965. It provides defined health care benefits to qualified beneficiaries aged 65 and older, certain disabled individuals, and those suffering from end-stage renal disease. The program provides two types of broad health care coverage. Part A (HI - Hospital Insurance Benefits for the Aged and Disabled) provides "premium-free" inpatient care in hospitals and skilled nursing facilities, home health care, and hospice care, with significant limitations on reimbursable amounts and benefit period.<sup>13</sup> Part B (SMI - Supplementary Medical Insurance for the Aged and Disabled) provides coverage for outpatient care, diagnostic testing, ambulance services, durable medical equipment, and some other health services not provided by Part A, for

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<sup>13</sup>HCFA 10050, U.S. Department of Health and Human Services, The Medicare 1994 Handbook, January 1994: 14.

those who chose to enroll and pay a monthly premium (currently about \$41.00 per month for most beneficiaries).<sup>14</sup> Both Part A and Part B involve deductibles and coinsurance.

HCFA contracts with "carriers" (either Blue Cross/Blue Shield or private commercial insurers) to process and pay Medicare Part B claims. In fiscal year 1994, Part B, the fastest growing segment of Medicare expenditures, accounted for over 35 million covered lives and paid approximately \$58.5 billion in benefits.<sup>15</sup> In 1992, thirty-four carriers processed over 550 million Part B claims from 900,000 providers and medical equipment suppliers.<sup>16</sup> Carriers must meet established processing time and accuracy criteria. In addition to screening claims for basic beneficiary eligibility, claims may be paid only for covered services, and those deemed to be medically necessary and appropriate. Although HCFA regulations specifically identify some medical services that are not covered, carriers develop and apply their own criteria for decisions of medical necessity.

The typical medical necessity review procedure is depicted in figure 1.<sup>17</sup> Claims are screened initially by computer and flagged for review at one of three levels. Level one and two reviewers perform primarily clerical reviews, such as comparisons of diagnostic and procedure codes and physician specialties, for obvious inequities. They may refer questionable claims to higher level review when the decision is beyond their capabilities. These personnel are usually high school graduates, some with college or similar post-secondary schooling, who are trained by the carriers. Level one reviewers progress to level two with requisite knowledge and experience gained in their positions. They are not required to have medical backgrounds.

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<sup>14</sup>Ibid., 21.

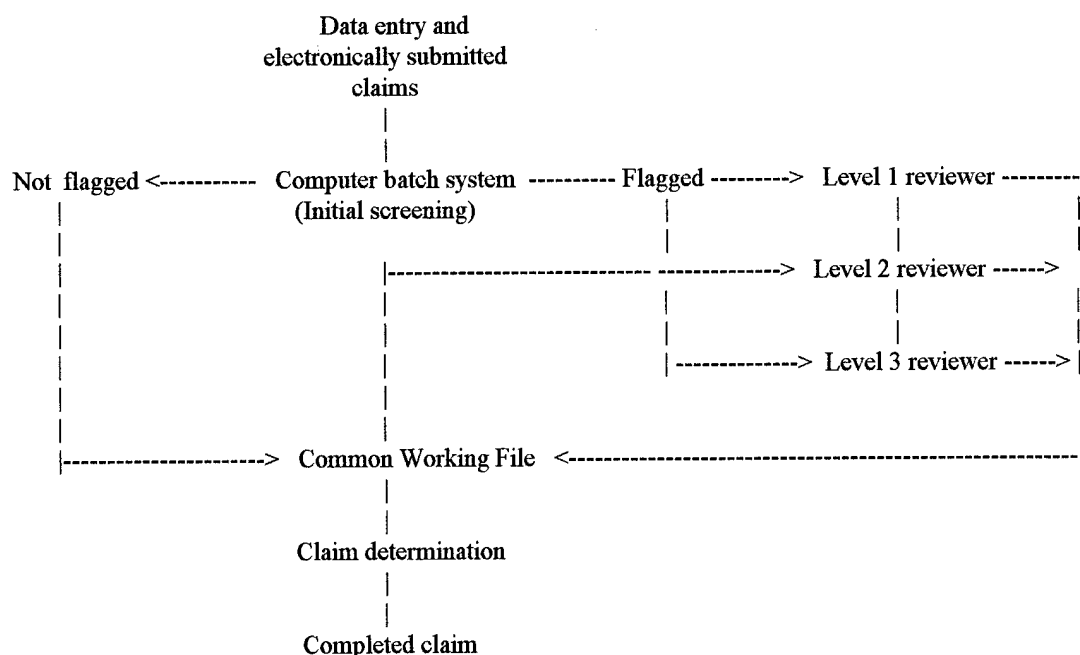
<sup>15</sup>HCFA, Bureau of Program Operations staff, phone conversation 10 February 1995.

<sup>16</sup>GAO/PEMD-93-27, 4.

<sup>17</sup>Ibid., 8.

Level three reviewers are nurses and physicians who are tasked with the more substantive reviews requiring interpretation and application of medical policy in claims payment decisions. They review claims flagged on initial screening according to established carrier policy for direct level three review, and those appealed from a lower level review. Two strategies are employed in flagging claims for this level of review. One strategy targets a specific procedure or service (such as 1 Holter monitoring per 180 days), and flags all claims for such services across all providers. Alternatively, all claims submitted by specific providers (whose number or type of services claimed are unusual) may be flagged for review. Carriers review an average of approximately ten percent of their claims for medical necessity. Ninety percent of those reviews are performed by level one and two reviewers. Approximately one percent of all carriers' claims are reviewed for medical necessity by nurse and physician reviewers.<sup>18</sup>

Figure 1: Medicare Part B Claims Processing System



<sup>18</sup>Ibid., 10.



### Literature Review.

One explanation for the current cost crisis in the United States health care industry is waste and inefficiency in the reimbursement system. Brandon, Podhorzer, and Pollack investigated the problem in the commercial health insurance industry.<sup>19</sup> They found that it cost 33.5 cents to provide each dollar of benefits. Although they applauded Medicare's much lower rate (2.3 cents), they singled out the same excessive time and resources that Medicare carriers expend on "reviewing, challenging, and denying claims" as one of several causes of exceptional overhead expenses in the commercial sector.

In a recent study of inefficiency in operation of the United States health care industry, Woolhandler and Himmelstein estimated that administrative costs account for as much as 24% of total health care expenditures.<sup>20</sup> This may be as much as two to three times the costs of administration in health care delivery systems of comparably developed countries. Although to a great extent this inefficiency is seen as a function of the pluralistic payment system in the United States, some reviewers believe a similar basis is the expansion of cost containment strategies under managed care.<sup>21</sup> However, it is not clear whether managed care strategies, such as claims review for appropriateness of care, affect beneficiaries and providers unfairly or are worth their costs in controlling overall health care delivery expense.

Review of claims for medical necessity is primarily a cost containment strategy,

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<sup>19</sup>Brandon, R., M. Podhorzer, and T. Pollack, "Premiums without benefits: waste and inefficiency in the commercial health insurance industry," International Journal of Health Services Vol. 21, No. 2 (1991): 265-283.

<sup>20</sup>Woolhandler, S. and D. Himmelstein, "The deteriorating administrative efficiency of the U.S. health care system," NEJM Vol. 324, No. 18 (May 2, 1991): 1253-1258.

<sup>21</sup>Thorpe, K., "Inside the black box of administrative costs," Health Affairs (Summer 1992): 41-55

although obviously related to quality of care issues such as risk to the patient of adverse outcome. But to achieve its most effective promise, claims review must do more than provide cost savings equal to its own costs. It must change provider behavior to preclude continued provision of medically unnecessary care. Nyman, Feldman, Shapiro, et al, investigated the success of Medicare's claims review process in altering physician behavior.<sup>22</sup> Utilizing Medicare Part B carrier quarterly report data, they compared rates of submission of claims for unnecessary procedures before and after implementation of a medical necessity screening process. Their results indicated that claims review was only marginally effective in changing physician behavior. Furthermore, they raised the issue of physicians' belief that the screening process was less than valid and objective.

The Center for Medicare Advocacy, Inc. has been an outspoken opponent of the overall coverage determination process employed by Medicare's carriers and fiscal intermediaries.<sup>23</sup> In recounting their successful eleven year battle to overturn denials of payment for skilled nursing facility care, Hulin and Hulin, Esqs., emphasized the seemingly arbitrary decision making process where "extremely strong cases are just as likely to be denied as weak ones."

The federal government has been able to use unduly restrictive rules and guidelines, together with coercive and biased coverage determination procedures, in a successful campaign to decimate this crucial source of health care financing.<sup>24</sup>

Shaw and Griffith, Esqs., provided members of the Medical Group Management

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<sup>22</sup>Nyman, J., R. Feldman, J. Shapiro, et. al., "Changing physician behavior: does medical review of Part B Medicare claims make a difference?" Inquiry Vol. 27 (Summer 1990): 127-137.

<sup>23</sup>Hulin, C. and J. Hulin, "An advance in Medicare advocacy: protecting patients from arbitrary coverage denial," The Medical Staff Counselor Vol. 3, No. 3 (Spring 1989): 45-49.

<sup>24</sup>*Ibid.*, 45.

Association an overview of the payment denial appeals process.<sup>25</sup> Besides providing details of the three primary appeals processes (in-person hearing, telephone hearing, and on-the-record review decisions), they emphasized the jeopardy to the physician of these *de novo* reconsiderations. That is, the provider or the patient faces the possibility of a more adverse decision than initially granted. Services that were perhaps approved only at a lower level of reimbursement than billed may be entirely denied.

Others feel that reviews for medical necessity will only increase, and appeals along with them. Lewis and Delaney outlined five reasons for this expectation.<sup>26</sup>

- regulations that demand rapid pre-authorization approval encourage denial due to difficulty in contacting the appropriate specialist for the review by the deadline.
- "gray areas" such as mental health and alternatives to traditional allopathic medicine have come under increased review.
- utilization management has expanded to cover previously unreviewed non-invasive procedures.
- appeals in most cases are free to the claimant and require little in the way of grounds for appeal.
- the existence of multiple levels of appeal increase the chances of recovery.

They also predict that health care reforms, like practice guidelines and capitated payment systems, will perhaps shift the focus of appeals, but will not decrease their occurrence.

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<sup>25</sup>Shaw, P. and R. Griffith, "Appealing Medicare payment denials," Medical Group Management Journal (November/December 1991): 26-30.

<sup>26</sup>Lewis, A. And A. Delaney, "Managing the claims denial appeals process," Journal of Health Care Benefits (January/February 1994): 27.

A controversial application of the determination of medical necessity of care involves coverage of new, and expensive, technology or therapeutics. Until completion of prolonged clinical trials and a sufficient history of safe and effective treatment, these new technologies are scrutinized more rigorously than other routine procedures. An excellent example is autologous bone marrow transplantation (ABMT) for breast cancer. Peters and Rogers investigated approval of insurance coverage for ABMT as a function of peer-reviewed decisions of appropriateness of care and clinical outcomes.<sup>27</sup> They found that patients in similar circumstances often received different determinations in response to pre-authorization requests. In there words:

There was substantial inconsistency in the frequency of approval of coverage both among insurers and between decisions made by some individual insurers, even for patients in the same study protocol . . . . The pre-determination process as applied to patients receiving care in clinical research trials of cancer therapy was arbitrary and capricious.<sup>28</sup>

Since many denials were reversed upon threat of litigation, the authors suggested the need for re-evaluation of company policy with regards to these routine medical necessity review procedures.

Within the realm of normal, or routine medical procedures, refinement of utilization review processes by private and public insurers has demonstrated the cost containment potential of the strategy. One insurer's representatives estimated that their claims review process saved \$5.00 for every \$1.00 it costs.<sup>29</sup> They found that the largest

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<sup>27</sup>Peters, W. and M. Rogers, "Variation in approval by insurance companies of coverage for autologous bone marrow transplantation for breast cancer," NEJM Vol. 330, No. 7 (February 17, 1994): 473-477.

<sup>28</sup>*Ibid.*, 473.

<sup>29</sup>Frankel, P., R. Chernow, and W. Rosenberg, "Information technology enters the doctor's office: Part I - six design and implementation lessons," Physician Executive Vol. 19, No. 5 (September-October 1993): 50.

share of savings came from denial of services "provided with excessive frequency, . . . that are inappropriate for a given diagnosis, . . . [or] for services that are investigational or not generally accepted medical practices."<sup>30</sup> Relevant to this review was their seemingly laudatory finding that "only" one third of those claims suspended proved to be "false positives." In other words, for 38,400 claims reviewed monthly, the insurer felt that an acceptable level of inefficiency in the process of claims review resulted in 12,800 claims being suspended inappropriately. Less than one percent of the physicians submitting claims accounted for over eighty percent of the claims denied. Many of these providers were subsequently targeted for 100% review. While the utilization review procedures could easily identify the aberrancies in practice patterns, little else in the way of associated provider, patient, or claim characteristics was investigated.

In 1989 at the request of the House of Representatives Committee on the Judiciary, Subcommittee on Administrative Law and Governmental Relations, the GAO conducted a review of the SSA/ALJ process for consideration of Medicare Part B appeals beyond the carrier level.<sup>31</sup> Analyzing data from the OHA Hearings Office Tracking System, part of the review involved examination of the outcome of cases by type of hearing requested. They found a great deal of variation in the percentage of favorable claims decisions across regions. Most importantly, their evaluation indicated a significant correlation between decision result and type of hearing:

Claimants choosing an in-person hearing had a substantially higher percentage of

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<sup>30</sup>Frankel, P., R. Chernow, and W. Rosenberg, "Information technology enters the doctor's office: Part II - six lessons about intended...and unintended...results," Physician Executive Vol. 20, No. 2 (February 1994): 26.

<sup>31</sup>GAO/HRD-90-18.

favorable decisions than did those choosing on-the-record hearings - 40 percent versus 26 percent.<sup>32</sup>

No attempt was made to investigate decision result as a function of other claim characteristics.

A later study for the Senate Committee on Finance, Subcommittee on Medicare and Long Term Care, evaluated differences in appeal outcomes before and after a change in Medicare policy requiring a mandatory on-the-record review of claims denied at the carrier level prior to higher level appeal.<sup>33</sup> In addition to their finding that the percentage of carrier hearing decisions favorable to claimants decreased under the new policy, the study highlighted two important potential biases in the claims review and appeals process:

. . . hearing officers at the carrier level [may] not [be] objective because their continued employment may depend on the carriers' being satisfied with the decisions they render. . . [and] the person assigned to review an on-the-record hearing decision may in some way be influenced by knowing that another hearing officer (supposedly at the same level of authority and competency) has already denied the claim.<sup>34</sup>

As in the previous GAO report, without case-specific data, the correlation of appeal results with claim characteristics could not be assessed.

In testimony before the House of Representatives Select Committee on Aging in 1992, the Director, Program Evaluation in Human Services Areas, GAO, reported on the two mechanisms that HCFA and its carriers employ to monitor the quality of Medicare Part B Claims processing.<sup>35</sup> The Quality Assurance (QA) Program, applied by both the

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<sup>32</sup>Ibid., 3.

<sup>33</sup>GAO/HRD-90-57, Medicare Appeals Process: Part B Changes Appear to be Fulfilling Their Purpose, July 16, 1990.

<sup>34</sup>Ibid., 4.

<sup>35</sup>GAO/T-PEMD-92-14.

carrier and HCFA to a randomly selected sample of the carrier's recent claims, evaluates the degree of processing errors and the corresponding dollar values involved. The director's testimony noted that this "program is limited to assessing the reliability of whether the criteria (or screens) were applied appropriately, and it cannot be used to assess the validity or 'goodness' of the criteria."<sup>36</sup> The Contractor Performance Evaluation Program (CPEP), employed in consideration of entering, renewing, or terminating a carrier contract, evaluates not only claims processing accuracy, but also includes indicators of customer satisfaction, administrative management and program efficiency. In concluding, the GAO was critical of the lack in both the QA and CPEP tools of a mechanism for assessing the "inaccurate determination of medical necessity and appropriateness."<sup>37</sup>

In 1993, Representative Ron Wyden asked the GAO to continue its investigation of Medicare Part B claims processing. The focus of their investigation was the reliability of claims processing across carriers.<sup>38</sup> The GAO staff examined three elements of the carriers' claims review process: developing medical policy; operationalizing medical policy; and, applying medical policy. They summarized:

[The] carriers we visited had constructed a system that was able to process a large number of claims very efficiently. However, it is also the case that this system was less well structured for addressing the question of whether medical care is appropriate or not. Moreover, three factors taken together - the time constraints under which determinations for medical necessity were made [some reviewers were required to screen over 400 claims per day], the decentralized way in which

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<sup>36</sup>Ibid., 4.

<sup>37</sup>Ibid., 6.

<sup>38</sup>GAO/PEMD-93-27.

medical policies were being developed and operationalized, and the weaknesses in some quality control methods being used - raised questions about the system's potential for treating Medicare claimants inconsistently, both within and across carriers.<sup>39</sup>

In the most recent report of its ongoing investigation of Medicare Part B claims processing, the GAO focused specifically on the denial of claims on the basis of reviews for medical necessity and appropriateness of care.<sup>40</sup> They assessed whether there were differences in these denial rates across six Medicare carriers chosen from 34 contractors to represent both large and small volume, and geographic diversity. Their results indicated that of the 71 most utilized and costly services allowed under Medicare Part B coverage, 58 showed significant variation in denial rates among the six carriers. Although several alternatives were proposed for the regional differences, the GAO concluded that at least some of this variation is an "unintended consequence of setting medical policy locally, . . . [and] viewed from a national perspective, it has produced inconsistent treatment of Medicare providers and beneficiaries from one region to another, and one carrier to another."<sup>41</sup> Of concern here is the possible alternative that variations both across and within carriers may be a manifestation of biases among claims reviewers that cause them to discriminate in decisions of medical necessity.

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<sup>39</sup>Ibid., 3.

<sup>40</sup>GAO/T-PEMD-94-17.

<sup>41</sup>Ibid., 14.



Statement of Purpose.

The purpose of this quantitative study was to determine if there are trends in carrier review decisions for medically necessary and appropriate care, involving identifiable Medicare Part B claims characteristics, that may indicate a basis for bias in the claims processing procedure. The hypothesis tested was that there is a functional relationship between the dependent variable, medical necessity review decision (approved/denied), and the independent variables of service setting, origin of provider training, provider gender, provider specialty, type of medical necessity review screen (service specific versus provider specific), and location (regional carrier). To accomplish this purpose, the development and application of medical necessity decision procedures were reviewed. Medical necessity screened claims data was gathered from Medicare Part B carriers, and the data from each claim was coded to allow for hypothesis testing through appropriate descriptive and inferential statistical analysis.

A great deal of HCFA resources are allocated to supporting the current claims processing system. In the prevailing congressional climate of deficit reduction, balanced budgets, and federal cost containment, the cost-effectiveness of such a system continues to be scrutinized and challenged. The results of this study provide HCFA policy makers with further information necessary to address the current system's critics, or issues to be considered in modifying the status quo.

## **CHAPTER 2**

### **METHODS AND PROCEDURES**

The project's methodology addressed three issues involved in the problem and purpose statements. First, for bias to manifest in an unfair review decision, the system must allow for some discretion on the part of the reviewer in interpreting the medical necessity criteria, and the reviewer must be privy to information upon which their bias is based. For example, the criteria defining which practitioners may perform what services must not be thoroughly objective in all cases, and the reviewer could not be charged with discriminating on the basis of provider type if he or she was not aware of such typology. Screens for medical necessity at the lowest level are most often auto-adjudications which do not allow such discretion and interpretation. The study focused on higher levels of review. One carrier was visited to validate the extent of discretion in its medical necessity review criteria application and accessibility of higher level reviewers to independent variable-linked claims characteristics.

Secondly, medical necessity review decisions were linked to specific, identifiable claims characteristics as a possible basis for bias in processing. A file consisting of all claims reviewed for medical necessity by nurse and physician reviewers (for the same service specific and provider targeted codes identified in calendar year 1993) was gathered from four carriers, to include identification of review decision and independent variable claim characteristics. Carriers were chosen to represent both geographic and claims volume diversity. All claims reviewed were included in the data request to avoid potential sampling problems. Each medical necessity review decision was independent and claim

characteristics were coded to be mutually exclusive and categorically exhaustive.

A possible threat to the validity of the study's results is over-representation in the study sample, and the inherent bias, of "targeted provider" reviews. As mentioned earlier, a large number of claims reviewed for medical necessity are the result of targeting a provider for review of all his or her claims based on the assumption that the number of claims submitted represents some aberrancy in practice pattern. The data were analyzed for this effect by comparing the results both including and excluding these reviews from the sample. Also, since name was used as a proxy for gender of provider (see coding below), there is the possibility that for those providers with gender neutral names, the choice in initial coding may be in error, or may change if the study were replicated..

Finally, the categorical nature of the data was addressed to allow for the most powerful descriptive and inferential statistical analysis. For example, consider the independent variables "service setting" and "provider specialty." The claims data file provided for 27 possible locations of service and 99 provider specialties. An appropriate grouping and coding strategy of such data elements allowed exploration for correlations and hypotheses testing of potential discrimination based on bias linked to each independent variable. The operational definitions and coding for each variable that follows were based upon a review of an initial carrier file submitted during the planning stages. Appendices B & C are examples of the raw data file and its coding for analysis respectively. Appendix D reflects the coding strategies for each variable.

The dependent variable consisted of the dichotomous medical necessity review decision (the "MR" column on the example data file), coded one if approved and zero if

denied. This was further operationally qualified, as indicated above, to mean a review at the second or higher category of review by a nurse or physician. "Approved" (A) indicated that the claim was at least partially paid. "Denied" (D) indicated that the claim was not paid.

The independent variables follow as they appear in order from left to right on the example data file. "Service setting", indicated as place of service (POS), was grouped for coding into three categories representing sub-acute care, acute care, and extended care settings. "Provider origin" was coded dichotomously (one if U.S., zero other) based upon place of professional training as indicated on cross reference between the claims data file and the carrier provider profile file. Provider name was used as a proxy in coding the binary variable "gender." "Provider specialty" was derived from a standard list of ninety-nine specialties. These were sub-grouped for coding according to medical, surgical, mental health, and other specialty affiliation. And finally, "type of screen" (CAT) reflected the different strategies employed by carriers in conducting medical necessity review, of which there were two. One strategy flagged claims for review based upon a service-specific identifier. For example, "concurrent care" (999) directs that all claims submitted for care to the same patient, on the same day, by different providers of the same specialty, shall be reviewed. Alternatively, if a specific provider was identified as submitting excessive or unusual claims, all of his claims for all questionable services were flagged for review. Thus, this variable was coded dichotomously as one if provider-targeted review, and zero otherwise. Approval/denial decisions related to each independent variable category were then compared across carriers.

Use of HCFA and carrier data required protection of patient and provider confidentiality. No patient specific identifiers were used in this study. Practitioner specific information, both name and provider number, presented in the data file were protected. Any reference or report of the data did not include these identifiers. All computer and hard copy records employed in the analyses were returned to HCFA following completion of the project.

## **CHAPTER 3**

### **THE RESULTS**

#### Summary of Data Files

As expected, there was a great deal of variability across carriers in the overall numbers of claims reviewed for medical necessity, and in the breakdown by independent variable claim characteristics (see Table 1). Similarly, the number of providers involved varied across carriers and was not proportional to the numbers of claims screened. Strategies for identification of claims to be reviewed showed wide diversity both as a result of the leeway HCFA allows its carriers in defining criteria for local standards of care and the way in which each carrier interpreted HCFA mandated screen guidelines. Table 2 reflects the range of service settings, types of screens, and provider types found in the data.

Much of the difference in the claims drawn for analysis can be explained in the nature of the data request and the difference in operations of each carrier's claims review function. For example, in an attempt to solicit only claims in which a true discretionary judgement was made in medical necessity review, it was expected that claims reviewed by a registered nurse or higher level professional would achieve this goal. However, the number of claims reviewed by such individuals turned out to be more a function of the regional market for nurses than a requirement for discretionary judgement in review for medical necessity. As a result, the expected "low volume" Alabama carrier, where RNs are apparently in much greater supply at lower cost than other carriers, had a high number

**Table 1: SUMMARY OF CLAIMS DATA RECEIVED**

Number of Claims:	<u>Carrier</u>	<u>Approved</u>	<u>Denied</u>	<u>Total</u>	
	Travelers - VA	2649	919	3568	
	Nationwide - OH	6	5096	5102	
	BC/BS - AL	160096	21406	181502	
	BC/BS - TX	3155	11365	14520	
	<b>Total</b>	165906	38786	204692	
By Type Review:		<u>Targeted Provider</u>	<u>Service Specific</u>		
	Travelers - VA	3172	396		
	Nationwide - OH	22	5080		
	BC/BS - AL	0	160096		
	BC/BS - TX	13582	938		
By Gender:		<u>Male</u>	<u>Female</u>	<u>Unknown</u>	
	Travelers - VA	3128	388	52	
	Nationwide - OH	4375	301	426	
	BC/BS - AL	156157	13998	11347	
	BC/BS - TX	881	72	13567	
By Origin:		<u>U.S.</u>	<u>Other</u>	<u>Unknown</u>	
	Travelers - VA	3487	81		
	Nationwide - OH	4894	208		
	BC/BS - AL	163685	17817		
	BC/BS - TX	812	197	13511	
By POS:		<u>Subacute</u>	<u>Acute</u>	<u>Extended</u>	
	Travelers - VA	2390	210	968	
	Nationwide - OH	4982	104	16	
	BC/BS - AL	41722	133154	6626	
	BC/BS - TX	659	13848	13	
By Specialty:		<u>Surg</u>	<u>Med</u>	<u>Psych</u>	<u>Other</u>
	Travelers - VA	264	1237	89	1170
	Nationwide - OH	699	445	0	3958
	BC/BS - AL	37241	120246	3479	20536
	BC/BS - TX	445	844	8	13223
Number of Providers:	Travelers - VA	107			
	Nationwide - OH	482			
	BC/BS - AL	3753			
	BC/BS - TX	209			
	<b>Total</b>	4551			

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**Table 2: RANGE OF VARIABLES INVOLVED**

<b>Places of Service:</b>	1	Office
	2	Patient's Home
	3	Inpatient Hospital
	4	Outpatient Hospital
	5	Skilled Nursing Facility
	6	Nursing Facility
	7	Custodial Care Facility
	8	Inpatient Psychiatric Facility
	9	Inpatient Psych Partial Hospitalization
	10	Inpatient Rehab Facility
	11	Emergency Room
	12	Ambulance - Land

<b>Service Screens:</b>	1	EPO Injections
	2	Group Psychotherapy
	3	Individual Psychotherapy
	4	Concurrent Care
	5	Routine Foot Care
	6	Debridement of Mycotic Nails
	7	Chiropractor Visits
	8	A-mode Scans
	9	Inpatient Rehab Visits
	10	NIVT
	11	Bone Density Test
	12	Cardiac Event Detection Test

**Provider Specialties:**

1	Ambulance Service	16	Hand Surgery	31	Physical Med
2	Anesthesiology	17	Hematology	32	Physician Assistant
3	Cardiac Surgery	18	Infectious Disease	33	Plastic Surgery
4	Cardiology	19	Internal Medicine	34	Podiatry
5	Chiropractor	20	Maxo Fac Surg	35	Prev Medicine
6	Clinical Lab	21	Med Equip Sup	36	Proctology
7	Critical Care	22	Medical Oncology	37	Psychiatry
8	CRNA	23	Nephrology	38	Psychology
9	Emerg Medicine	24	Neurology	39	Pulmonary Disease
10	Endocrinology	25	Neurosurgery	40	PVD
11	Family Practice	26	Ob/Gyn	41	Radiology
12	Gastroenterology	27	Ophthalmology	42	Rheumatology
13	General Practice	28	Oral Surgery	43	Thoracic Surgery
14	General Surgery	29	Ortho Surgery	44	Urology
15	Geriatric Medicine	30	Pediatrics	45	Vascular Surgery



of RNs doing even lower level reviews, and thus a high number of claims in response to the data request.<sup>42</sup>

An unanticipated problem was encountered with the gender and origin data fields. Many of the claims were submitted by providers whose first names were virtually unrecognizable as codable male or female. A large number of claims were from service companies such as clinical laboratory or ambulance transport providers rather than individuals whose first names could be used as a proxy for gender in coding. Additionally, many of these claims could not be cross-matched with provider files to determine "origin" for coding. These "unknown" fields resulted in a large number of claims being eliminated from the statistical analyses which follows due to missing data.<sup>43</sup> Any future such investigation should center only on individual person-providers to control for such an anomaly in the data.

### Statistical Analyses

The large number of claims reported with missing or incomprehensible data resulted in different sample sizes for several of the independent variables examined. Table 3 reflects the respective claim numbers (n) included by independent variable category and medical review decision in each cross-tabulation and chi-square hypothesis test. Difference in proportion of claims approved by type of medical necessity review (service specific, 9.7% vs targeted provider, 30.9%) was significant ( $\chi^2 = 1108.04, p > .000$ ), although this accounted for only 4.9% of the shared variance based on the phi statistic. Variation explained by difference in approval rate by

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<sup>42</sup> In an attempt to limit the data response, the AL carrier was requested to submit only those claims for service codes identified for review by the other carriers who had already responded. As a result, the data consisted only of service-specific reviews.

<sup>43</sup> Additionally, a number of carriers' Lotus files contained aggregate claims data, i.e. claims of identical characteristics were lumped together into a single claim line, that was unrecognizable by SPSS, eliminating these from analysis.

**Table 3: BIVARIATE STATISTICS - CHI SQUARE ANALYSIS OF THE RELATIONSHIP  
OF DISCREET STUDY VARIABLES WITH MEDICAL REVIEW DECISION**

Variable	Approved	Denied	$\chi^2$	df	Prob	Phi
Type Review (n = 23187)						
Targeted Provider	5186	11590				
Service Specific	624	5787	1108.04	1	<.000	.22
Provider Gender (n = 9142)						
Male	2498	5883				
Female	387	374	143.11	1	<.000	-.13
Provider Origin (n = 9644)						
U.S.	2804	6354				
Other	98	388	23.97	1	<.000	.05
Place of Service (n = 23187)						
Subacute	2223	5805				
Acute	3138	11024				
Extended	449	548	304.94	2	<.000	.11
Provider Specialty (n = 23187)						
Surgery	314	1094				
Medicine	1391	1135				
Psych	739	166				
Other	3366	14982	3201.23	3	<.000	.37
Location (n = 23187)						
VA	2649	919				
OH	6	5093				
TX	3155	11365	6371.26	2	<.000	.52

gender (male, 29.8% vs female, 50.9%), although significant ( $\chi^2 = 143.11, p > .000$ ), was similarly non-substantive (1.7%), as were provider origin (U.S., 30.6% vs other, 20.2%;  $\chi^2 = 23.97, p > .000, \Phi = .05$ ) and place of service (subacute, 27.7% vs acute, 22.2% vs extended, 45.0%;  $\chi^2 = 304.94, p > .000, \Phi = .11$ ).

Not surprisingly, about 40% of the variation in the data can be explained by the last two variables. There were significant differences in approval and denial ratios both by provider specialty (surgical, 22.3% approved vs medical, 55.1%, psych, 81.7%, and other, 18.3%;  $\chi^2 = 3201.23, p > .000$ ), and by location (VA, 74.2% approved vs OH, .1%, and TX, 21.7%;  $\chi^2 = 6371.26, p > .000$ ), accounting for 13.7% and 27.0% of the variance respectively. This is probably an artifact of the mid-west carrier's denial of essentially all claims reviewed, a finding that should be further investigated. The fact that such a high percentage of claims targeted for review were denied as compared to other carriers implies an inefficiency in the criteria for flagging claims for higher level review or in interpretation of the standard of care. Although the null was rejected in all cases, only the provider specialty group and regional carrier relationships seem to any degree predictive of medical review decision and therefore potential bases for bias in review for medical necessity.

## **CHAPTER 4**

### **DISCUSSION AND CONCLUSIONS**

The intent of this investigation was to identify if there are identifiable biases in the review for medical necessity of Medicare Part B claims that might unfairly affect certain categories of providers, and the beneficiaries under their care. Hypothesized potential bases for bias included types of strategy for targeting reviews, place of professional training, gender and specialty of provider, setting in which care was received, and geographic region of the country. The results supported only the variables of provider specialty and location as possible discriminators in medical necessity review decisions. This is consistent with, and in further support of, both observations made of one of the study carrier's medical necessity review operations and other recent investigations of denial rates in Medicare Part B claims processing.

Claims processors were observed and interviewed during review of claims for medical necessity at the Virginia regional carrier's center in the initial phase of the study. Although they had access to various screens and records that afforded indicators of provider gender and place of training, they neither consulted nor were cognizant of such information during routine processing of claims for medical necessity review. Similarly, other than the routine auto-adjudication matching of procedure codes with service site, reviewers did not attend to place of service in approval or denial decisions. Since reviews were routinely focused around specific types of services, or targeted providers based upon aberrancies in claim submission related to a specific procedure, they were aware of provider specialties associated with such procedures. These observations, as is true of all results of this investigation, are restricted to only those carriers involved and are not necessarily generalizable to the universe of all Medicare Part B carriers.

The geographic diversity accounting for the majority of variance in the study data is consistent with the several GAO reports mentioned earlier and was the subject of its most recent examination. They identified five possible factors that explain regional variation in medical necessity review denial rates.<sup>44</sup>

- carriers differ in how they implement prepayment screens.
- carriers differ in how they interpret national coverage standards.
- carriers differ in how they treat incomplete claims.
- carriers differ in how they report reason for claim denial.
- a few providers account for a significant proportion of inter-carrier variation.

While the legislative intent of the Medicare Part B program was to allow accommodation of regional variations in local medical community standards of care, the result clearly discriminates against providers in levels of reimbursement, and beneficiaries in levels of care covered. How many, of what type of procedure, at what level of intensity, and under what circumstances a patient is authorized to receive care is in many cases dependent upon where beneficiaries seek care in the country. For such discrimination to occur under a national benefit program is inappropriate.

A further regional effect determinant is the way in which carriers are funded for medical necessity review. Carriers are budgeted according to the volume of claims expected to be received, and must allocate a proportion of their overall budget for medical necessity review. Recent demonstrations have proven the cost-benefit of allocating more resources to this activity (up to 1.7 times the savings of comparison carriers) and the resulting elimination of an equivalent

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<sup>44</sup>GAO/PEMD-95-10, Medicare Part B: Regional Variation in Denial Rates for Medical Necessity, December 19, 1994.

level of unnecessary or inappropriate care.<sup>45</sup> However, as reported above, the amount of inputs available at equivalent levels of funding differs due to regional marketplace variations for the necessary support personnel. Where more personnel are available for such activities, more claims edits will be established and potentially more claims reviews performed (such as observed in the difference in number of claims reviewed in Alabama vs Virginia).

While HCFA and its carriers conduct various reliability control reviews of the overall claims processing function through its QA and CPEP contractor evaluations, no such activity is directed specifically at claims reviewed for medical necessity. Such an evaluation would be a more direct, and possibly more appropriate investigation of the potential for bias in any given carrier's medical review decisions. Additionally, as the proposed Medicare Transaction System is implemented, standardizing claims review terminology and application across carriers, a similar investigation such as this one from a common database may be more effective in identifying trends indicative of potential bias in denial rates.

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<sup>45</sup>GAO/HEHS-94-35, Medicare: Greater Investment in Claims Review Would Save Millions, March 2, 1994.

## APPENDIX A - Claims Processing History

### Supplemental Medical Insurance Program Administrative Expenses\*

#### Administrative Expenses

Fiscal Year	Amount in Millions	Percent of Benefit Payments
1980	593	5.8
1985	922	4.2
1990	1,524	3.7
1993	1,845	3.5

### Medicare Claims Processing Costs\*

#### Net Unit Cost Per Claim

	1980	1985	1990	1993
Intermediaries	\$2.96	\$2.33	\$1.84	\$1.62
Carriers	\$2.33	\$1.88	\$1.56	\$1.30

### Medicare Appeals\*

	1992		1993	
	Intermediary Reviews	Carrier Reviews	Intermediary Reviews	Carrier Reviews
Number Processed	35,909	6,467,415	34,214	4,996,756
Percent Reversed	47.4	63.2	43.0	71.5

\*HCFA 03349, U.S. DHHS, 1994 Data Compendium, March 1994: 40, 42.

## APPENDIX B - Raw Data File

--	-----	-----	-----	---	-		----
					C		
	PROVIDER	PROVIDER	PROVIDER	PROV	A	M	SCRN
POS	ID NUMBER	LASTNAME	FIRSTNAME	SPEC	T	R	#
--	-----	-----	-----	---	-		----
21	XXXXXXXXXX	XXXXXXXXXXXX	FREDERICK	5	2	A	999
21	XXXXXXXXXX	XXXXXXXXXXXX	FRANCIS	5	2	A	999
11	XXXXXXXXXX	XXXXXXXXXXXX	KAREN	11	2	A	19
21	XXXXXXXXXX	XXXXXXXXXXXX	KIRAN	5	2	D	999
11	XXXXXXXXXX	XXXXXXXXXXXX	G	83	2	D	19
22	XXXXXXXXXX	XXXXXXXXXXXX	DOUGLAS	6	2	A	999
33	XXXXXXXXXX	XXXXXXXXXXXX	LEWIS	68	3	A	456
21	XXXXXXXXXX	XXXXXXXXXXXX	STGEORGE	6	2	A	999
31	XXXXXXXXXX	XXXXXXXXXXXX	LEWIS	68	3	A	456
51	XXXXXXXXXX	XXXXXXXXXXXX	WILLIAM	26	2	D	112
* 1		2	3	4	6	5	6

\*

- 1 - place of service
- 2 - provider last name (origin)
- 3 - provider first name (gender)
- 4 - provider specialty
- 5 - medical necessity review decision
- 6 - type of review (service specific or provider targeted)



## APPENDIX C - Coded Data File

--	-----	-----	-----	---	-		----
					C		
POS	PROVIDER ID NUMBER	PROVIDER ORIGIN	PROVIDER FIRSTNAME	PROV SPEC	A T	M R	SCRN #
--	-----	-----	-----	---	-		----
2	XXXXXXXXXX	1	1	2	0	1	0
2	XXXXXXXXXX	1	0	2	0	1	0
1	XXXXXXXXXX	1	0	2	0	1	0
1	XXXXXXXXXX	0	1	2	0	0	0
1	XXXXXXXXXX	1	1	2	0	0	0
2	XXXXXXXXXX	1	1	2	0	1	0
3	XXXXXXXXXX	1	1	4	1	1	1
2	XXXXXXXXXX	1	1	2	0	1	0
3	XXXXXXXXXX	0	1	4	1	1	1
2	XXXXXXXXXX	1	1	3	0	0	0
1		2	3	4	6	5	6

\*

- 1 - place of service
- 2 - provider last name (origin)
- 3 - provider first name (gender)
- 4 - provider specialty
- 5 - medical necessity review decision
- 6 - type of review (service specific or targeted provider)

## APPENDIX D - Data Coding Strategy

### DEPENDENT VARIABLE:

#### MEDICAL REVIEW DECISION

CODE:	Approved (A)	=	1
	Denied (D)	=	0

### INDEPENDENT VARIABLES:

#### SERVICE SETTING (POS)

CODE:	Sub-Acute Care: Office (11)		
	Patient Home (12)	=	1
	Acute Care: Inpatient Hospital (21)		
	Outpatient Hospital (22)		
	Emergency Room (23)		
	Ambulatory Surgical Center (24)		
	Inpatient Psych Facility (51)		
	Inpatient Psych Partial Hospitalization (52)	=	2
	Extended Care: Skilled Nursing Facility (31)		
	Nursing Facility (32)		
	Custodial Care Facility (33)		
	Hospice (34)	=	3

#### PROVIDER ORIGIN

CODE:	U.S.	=	1
	Other	=	0

#### GENDER

CODE:	Male	=	1
	Female	=	0

#### PROVIDER SPECIALTY (KEYED TO CARRIER "PROV SPE" CODE)

CODE:	Surgical specialties:	=	1
	Medical specialties:	=	2
	Psych specialties:	=	3
	Other specialties:	=	4

#### TYPE OF SCREEN

CODE:	Provider-targeted	=	1
	Service-specific	=	0

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